

**Written Testimony Submitted by Marty R. McKay Rph
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Thank you very much for this opportunity to speak with you today. I would like to discuss the tremendous opportunity we have today for using technology to prevent medication errors and save lives, how the pharmacist should play a critical role in implementing that technology in our health care system, and how federal legislation and regulation can enable the development of that technology and not restrict it.

In addition to being a member of the Louisiana State Board of Pharmacy and the current President of the Louisiana Pharmacists Association, I have been a practicing pharmacist for over 26 years. I have also been involved over the last 15 years in research on using technology to prevent medication errors and enhance patient safety, especially in the nursing home setting. As a practicing pharmacist, primarily in the retail and nursing home areas, I see the deficiencies and dangers of current medication delivery systems on a daily basis. But I also see the opportunities that technology holds for preventing a large percentage of these errors.

Medication error is a huge problem in the United States today, causing patient deaths and injury and costing the United States billions of dollars each year./P>

As you know, the Institute of Medicine (IOM) released a report in November 1999, which concluded that anywhere from 44,000 to 98,000 deaths occur each year in hospitals due to medical errors. This study estimates that the increased hospital cost alone of preventable adverse drug events in hospitals is over \$2 Billion per year. I believe that this study may only reveal the tip of the iceberg. This figure probably greatly underestimates the cost because it does not include indirect costs (such as loss of productivity of the patient, increased insurance costs, or long-term increased medical costs of the patient). Also, adverse drug events occur in places other than hospitals, such as nursing homes, retail pharmacies, home health care, prisons, outpatient clinics, and doctors' offices. A study released in the March/April Journal of the American Pharmaceutical Association estimates that drug misuse costs the economy more than \$177 Billion each year and the estimated number of patient deaths due to drug misuse both in and outside hospitals has increased from 198,000 in 1995 to 218,000 in 2000.

To illustrate how the scope of this problem extends beyond hospitals, please consider nursing homes. There are about 1.6 million patients in the more than 17,000 nursing homes and other long-term care facilities in the United States. Patients in long-term care facilities routinely receive many doses of many different medications each day and nursing homes have fewer nurses per patient than do hospitals. Also, nursing homes are staffed with lesser-trained nurses than are hospitals. Just from these basic facts, you can see how the problem of medication errors in long-term care facilities could be significant.

Although there has been relatively little research on medication errors in nursing homes, a recent study (Gurwitz, et al) reported in the August 1, 2001 issue of the *American Journal of Medicine*, concluded that about 350,000 adverse drug events occur in nursing homes annually, of which 20,000 are fatal or life-threatening. Most of the preventable errors found in this study occurred in the ordering and monitoring stages of care. The pharmacist and technology can help prevent many of these errors in hospitals, nursing homes, and all other areas of patient care in a cost-effective manner.

A major reason for these errors is that many hospitals, and most nursing homes, and other in-patient and outpatient health care facilities use simple, pen-and-paper medication prescribing and medical charting systems. Most medications are manually delivered without any automated verification technology such as bar code readers. **Once a prescription drug leaves a pharmacy, there is more sophisticated**

technology used to determine if you are charged the right price for a gallon of milk at a supermarket than is typically used to make sure that a patient is getting the right dose of a potentially fatal drug.

As an example of this manual system, please look at Exhibit A attached to my written materials. You will see a typical patient medication administration record (called a "MAR") used, in one form or another, by most nursing homes in the United States. Notice that although most of the medications to be given to this patient are printed out by a computer, the remainder of the chart is hand-written by the nurse. Typically, the nurse must manually find these medications which are stored on a medication cart along with the medications for anywhere from 25 to 50 patients. The nurse must then pick out the right number of doses of these medications, administer these drugs to the patient, manually chart this administration, and then move on to the next patient. The nurse must usually complete her med pass for 25 to 50 patients within a 1 to 2 hour window. Obviously there is great opportunity for an error to occur in this entirely manual and hand-written process.

Please also note that some medications have been discontinued and new medications have been added by hand written instructions. These changes occurred because the doctor changed the patient's medication. Such changes are typically hand-written by the nurse pursuant to the doctor's instruction and are telephoned to the pharmacy by the nurse. Not only are the discontinued medications often then destroyed (one 1994 study estimates that 6.7% of all medications dispensed to long-term care facilities are destroyed), this process is rife with the opportunity for error. Although all pharmacists use sophisticated computer software to check for drug interactions, drug allergies, and proper drug utilization, all that technology may be meaningless if the nurse sends the pharmacy the wrong information or if the pharmacist does not have access to critical patient information. Often, by the time the mistake is caught, it is too late and a patient has been harmed or even died. This problem will only worsen, as the shortage of nurses and pharmacists becomes more acute (it is estimated that the United States currently has a shortage of 12,000 pharmacists and 20% of nurses plan to leave the field within the next 5 years).

The Pharmacist should play a key role in preventing adverse drug events.

Probably the single most important way to help prevent adverse drug events is to create medication delivery systems and procedures that allow the pharmacist to do more than count and fill prescriptions. No other health care professional has the extensive training and knowledge about prescription drugs that a pharmacist has. In fact, a 1999 study reported that including the pharmacist on medical rounds with a physician reduced the errors related to medication ordering by 66% (IOM Fact Sheet, *Medication Errors: The Scope of the Problem*). However, the pharmacist is too often used just to fill a prescription and to provide limited counseling to a nurse, physician or a patient. A pharmacist should serve as the gatekeeper of a patient's entire drug regimen and, through technology and appropriate reimbursement mechanisms, be allowed to more actively participate in prescribing and monitoring a patient's drug therapy. The pharmacist, already the front-line of defense for preventing medication errors, should be allowed to expand his role through the use of more sophisticated information technologies and automation. So even though the pharmacist cannot make rounds with the physician, he can still help reduce medication errors just as if he did.

As an example, please refer to Exhibit B attached to my written statement. This is an illustration of a computerized MAR, which Pearson Medical Technologies has been developing over the last several years. This MAR shows the same information as the handwritten MAR, but it is also available to the pharmacist electronically. This MAR shows the medications to be administered to the patient, but the computer automatically the medication, the software charts the administration. This information is kept in real-time and can be electronically linked to an automated medication delivery device. This software

and the automated delivery device will use bar coding or similar technology to verify that the right drug is given to the right patient at the right time in the right dose. New medication orders are electronically entered by the physician and verified as appropriate for that patient by the pharmacist who has access to all pertinent patient information. This type of medication delivery system will assist the nurse, enhance patient safety and care, and help prevent medication errors. Although this particular software is about one (1) year away from being available on the market, there are numerous automated devices and computer software already developed for retail pharmacies, hospitals, nursing homes, home health care, and doctors offices and clinics that can help prevent errors.

Comparing the two different medication delivery systems described in Exhibits A and B, think about which system you would want the nurse administering medications to your mother to use.

Congress can help prevent roadblocks to implementing new error-preventing technology.

As this Congress considers adopting a prescription drug benefit plan, regardless of the size or scope of such a plan, I strongly encourage you to enact legislation which would (1) help prevent regulatory roadblocks to implementing today's life-saving technology and (2) establish new and innovative reimbursement mechanisms that will promote investment in information technology and automated delivery systems. This will save patient lives and save this country billions of dollars in unnecessary costs.

All states regulate the dispensing of prescription drugs by pharmacists. Some states rules and regulations have not been updated to allow a pharmacist to fully utilize the automation technology that is currently available. In Louisiana, the State Board of Pharmacy has recently completely revised its regulations to allow pharmacist-controlled medication delivery systems to be used outside the four walls of a traditional pharmacy provided adequate safeguards are in place. Some states have not revised their rules to allow the use of such technology. Federal regulations, like HIPAA, should not prevent or discourage states from enacting modern pharmacy automation regulations that enable the safe use of the new automation technology so a pharmacist can help prevent medication errors. An example of such progressive steps is the Drug Enforcement Agency, which just released for comment its recommendation to allow controlled drugs to be stored and delivered from automated dispensing devices located in long-term care facilities, but controlled by the pharmacist.

Just as important in preventing any regulatory roadblocks, reimbursement policies and mechanisms should encourage investment in sophisticated automation and information technology. The state and federal governments are the primary payors of the cost of health care in the United States through Medicaid, Medicare, VA, and military medical programs. As such, the federal and state governments have the most to gain financially from decreasing medication errors in our medical institutions across the nation. Preventing these medication errors would not only prevent patient injury and deaths, but would save billions of dollars in health care costs each year. Since the major benefactor of these savings would be state and federal governments, reimbursement mechanisms under Medicare and Medicaid should help pay the up front cost of implementing these systems to help save patient lives and save the billions of dollars in unnecessary costs caused by medication errors. The Veterans Administration has already begun this process in its facilities and implementation of such advanced technology has reduced the medication error in one facility by 70% according to a report by the Agency for Healthcare Research and Quality (IOM Fact Sheet, *Medication Errors: The Scope of the Problem*).

I agree with the conclusions of the report of the Institute of Medicine (IOM) Committee on the Quality of Health Care in America, titled, *Crossing the Quality Chasm: A New Health System for the 21st Century*, which recommends that current payment methods be examined to remove barriers to

innovation and quality, and to test options to better align payment methods with quality goals. For instance, a pharmacist who implements and is responsible for monitoring a patient's drug therapy using an information system and automated medication delivery system should be compensated for his cognitive services, not just receive a fee for dispensing medications. This compensation could be a fee for service, a flat rate for each patient for which the pharmacist is responsible (capitation), an amount based on the estimated savings resulting from the prevention of medication errors, or a combination of those methods. Such new payment mechanisms would encourage the use of error-preventing automation and information technology, prevent thousands of needless patient deaths and injury, reduce direct medical costs for state and federal governments, and reduce indirect costs to the entire economy of this country.

Conclusion

The problem of medication errors in our health system today is huge. Patients are dying needlessly. The costs created by preventable patient injury and deaths, both direct unnecessary medical costs and indirect costs suffered by the nation as a whole are mind-boggling. A major cause of the preventable errors is the use of outdated systems for prescribing, charting and monitoring a patient's drug therapy. The pharmacists of this country are in the best position to help reduce medication errors and serve as the nation's gatekeeper of prescription drug utilization and monitoring. To fulfill this role, the pharmacist must utilize modern automation and information technology in new and innovative ways. To accomplish this, regulations must not limit a pharmacist to practicing his craft inside the four walls of his pharmacy, but enable him to use technology to apply his skills to prevent medication errors. New and innovative payment incentives must be adopted to encourage the development, implementation and use of this new technology.